

IN THE CLAIMS

Amend the claims as follows:

1. (currently amended) A sensor, comprising a substrate and a membrane connected to said substrate and having a surface ~~where~~ on which an interaction with a medium occurs in a manner to deflect said membrane relative to said substrate.
2. (currently amended) The sensor of claim 1 wherein said membrane has a convex or concave shape before said interaction.
3. (currently amended) The sensor of claim 1 wherein said surface has a chemical or biomolecular reaction agent thereon ~~where~~ such that a reaction with species of an analyte occurs on said surface in a manner to deflect said membrane relative to said substrate.
4. (currently amended) The sensor of claim 1 wherein said membrane has a deflectable convex or concave shape before said interaction.
5. (original) The sensor of claim 1 further including means for detecting deflection of the membrane relative to the substrate.
6. (original) The sensor of claim 2 wherein said means detects a change in capacitance between electrodes associated with said substrate and said membrane by virtue of the deflection of said membrane.

7.(original) The sensor of claim 3 wherein the reaction agent comprises a coating on the surface.

8.(original) The sensor of claim 7 wherein the coating includes reaction molecules.

9.(original) The sensor of claim 7 wherein the molecules provide chemical reaction sites.

10.(original) The sensor of clam 7 wherein the molecules provide biomolecular reaction sites.

11.(currently amended) The sensor of claim 1 wherein the membrane includes an interior surface subjected to gas pressure to impart a convex shape to said surface and an exterior surface having said a reaction agent thereon such that a reaction with species of an analyte occurs on said surface in a manner to deflect said membrane relative to said substrate while said membrane has said convex shape imparted thereto by said gas pressure.

12.(currently amended) The sensor of claim 1 wherein the membrane is an elastomeric material.

13.(currently amended) The sensor of claim 1 wherein the membrane includes one or more metallic layers imparting a convex or concave shape to said membrane before said interaction.

14.(original) The sensor of claim 1 wherein the membrane comprises a ceramic material.

15.(original) The sensor of claim 14 wherein the ceramic material comprises silicon oxide or silicon nitride.

16.(original) The sensor of claim 1 wherein the medium comprises an analyte.

17.(currently amended) A sensor comprising ~~at least one sensor of claim 3 and at least one sensor of claim 1 without a reaction agent~~ a substrate and a membrane connected to said substrate and having a surface on which an interaction with a medium occurs in a manner to deflect said membrane relative to said substrate and having a dummy membrane connected to the substrate and having a surface on which no interaction with said medium occurs.

18.(original) A sensor, comprising a sensor area according to claim 1 and an actuation area in gas flow communication with the sensor area and having an actuation membrane spaced from the substrate by a gas-containing gap and movable in a manner to gas pressurize said sensor area when said actuation membrane is moved toward said substrate.

19.(currently amended) A transducer, comprising a substrate and a membrane having a surface and peripherally connected to said substrate and being deflectable relative to said substrate by an interaction occurring on said membrane surface .

20.(currently amended) An actuator, comprising a substrate having a substrate electrode and an actuation membrane having a membrane electrode and spaced from the substrate by a gas-containing gap from said substrate, said actuation membrane being movable toward the substrate to expel gas from the gap by energization of the substrate electrode and the membrane electrode.

21.(currently amended) A method of sensing, comprising producing an interaction ~~at~~ on a surface of a membrane connected to a substrate, deflecting the membrane ~~when~~ in response to the interaction ~~occurs~~, and detecting the deflection of the membrane.

22.(original) The method of claim 21 wherein said interaction comprises a chemical and/or biomolecular reaction between an agent on said surface and molecules in an analyte.

23.(currently amended) A method of sensing, comprising producing an interaction ~~at~~ on a surface of a membrane connected to a substrate while said membrane is gas pressurized to impart a deflectable shape thereto, deflecting the membrane ~~when~~ in response to the interaction ~~occurs~~, and detecting the deflection of the membrane.

24.(currently amended) A method of transmitting stress, comprising providing a membrane connected to a substrate with said membrane having a convex or concave shape and inducing surface stress in said membrane by an interaction occurring on a surface of the membrane in a manner that deflects said membrane relative to said substrate.

25.(currently amended) A method of transmitting stress, comprising providing a flat membrane connected to a substrate and inducing surface stress in said membrane by an interaction occurring on a surface of the membrane in a manner that deflects said membrane into to a convex or concave shape.

26.(currently amended) A method of generating a flow of gas, comprising moving an actuation membrane spaced from a substrate by a gas-containing gap toward said substrate to expel gas from the gap by energizing an electrode on the substrate and an electrode on the membrane.

27.(original) A method of forming a membrane having an arcuate shape, comprising heating the membrane to impart an arcuate shape thereto, depositing one more metallic layers on the heated membrane, and cooling the membrane to ambient temperature, the membrane being constrained by the one or more metallic layers in an arcuate shape.

28.(new) The sensor of claim 1 having said surface on which the interaction occurs with a liquid or gas medium in a manner to deflect said membrane relative to said substrate.